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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,788	06/07/2002	Harry Garth Walton	YAMAP0807US	9530

7590

10/07/2003

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EXAMINER

WANG, GEORGE Y

ART UNIT PAPER NUMBER

2871

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/088,788	WALTON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	George Y. Wang	2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 1-3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
    If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Pri rity under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
    a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
        1. ☒ Certified copies of the priority documents have been received.  
        2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
    \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
    a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 21 March 2002 and 04 June 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Specification***

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-2, it should be clear in the claims as to what each of the viscosity coefficients define or represent. Appropriate correction is required.

As to claim 3, the claim recites the limitation "other phase." There is insufficient antecedent basis for this limitation in the claim.

Note: For the purpose of examination, Examiner assumes this to be the other phase of the switching.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-2 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admission of Prior Art (AAPA) in view of Carr et al. (U.S. Patent No. 4,482,472, from hereinafter "Carr").

AAPA discloses a liquid crystal device having a surface mode liquid crystal device comprising a layer of nematic liquid crystal (pg. 1, lines 1-12), however, AAPA fails to specifically disclose viscosity coefficients  $\eta_1$ ,  $\eta_2$ , and  $\gamma_1$  that satisfy  $(\eta_1 - \eta_2)/\gamma_1 \geq 1.15$  or  $(\eta_1 - \eta_2)/\gamma_1 \leq 0.9$ .

Carr discloses that the viscosity of a liquid crystal material is important because it determines the speed of response of the display device, such as in switching from various states (col. 1, lines 42-45). Furthermore, the reference discloses response times are dependent on a number of viscosity coefficients (col. 1, lines 50-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified viscosity coefficient values,  $\eta_1$ ,  $\eta_2$ , and  $\gamma_1$  that satisfy  $(\eta_1 - \eta_2)/\gamma_1 \geq 1.15$  or  $(\eta_1 - \eta_2)/\gamma_1 \leq 0.9$  since one would be motivated to optimize the viscosity and subsequent response time of the liquid crystal material. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admission of Prior Art (AAPA) in view of Takatori (U.S. Patent No. 6,351,301).

8. As to claims 3-5, AAPA discloses a surface mode liquid crystal device as recited above with a smectic phase (pg. 1, lines 10-12), however the reference does not explicitly show a switching between that and the nematic phase.

Takatori discloses a liquid crystal device having a switching mode between nematic and smectic phases (col. 3, lines 31-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified these phases of transition since one would be motivated to order and align the liquid crystal molecules adequately, either to achieve stabilization, a particular brightness level consistency (col. 3, lines 31-46), or just having low drive frequency while attaining a grayscale display (col. 4, lines 44-55).

9. Regarding claim 6, AAPA discloses a surface mode liquid crystal device as recited above, however the reference fails to specifically disclose a liquid crystal layer having a polymer network.

Takatori disclose a liquid crystal device having a polymer network (fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a polymer network since one would be motivated to maximize stabilization (col. 2, lines 53-65). Such a stabilization would induce continuous display, as in grayscale, or improve contrast (col. 3, lines 1-5).

10. As to claim 7, AAPA discloses a surface mode liquid crystal device as recited above in which the liquid crystal has positive dielectric anisotropy and is disposed

between first and second layers providing substantially parallel alignment and a pretilt less than  $45^\circ$  (pg. 1, lines 19-24).

11. As per claim 8, AAPA discloses a surface mode liquid crystal device as recited above in which the pretilt is less than  $10^\circ$  (pg. 1, line 21).

12. Regarding claim 9, AAPA discloses a surface mode liquid crystal device as recited above in which the liquid crystal has negative dielectric anisotropy and is disposed between first and second layers providing substantially parallel alignment and a pretilt greater than  $45^\circ$  (pg. 2, lines 15-19).

13. As to claim 10, AAPA discloses a surface mode liquid crystal device as recited above in which the pretilt is greater than  $80^\circ$  (pg. 2, line 17).

### **Conclusion**

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 703-305-7242. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

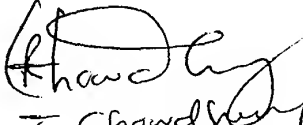
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

gw  
September 26, 2003

  
T. Chowdhury  
Primary Examiner  
Tech. Center 2800